

WHAT IS CLAIMED IS:

1. A balance practicing machine having a seat and a drive assembly that imparts a swinging motion in a longitudinal direction to the seat, said balance practicing machine comprising:

a seat base attached to the seat;

a plurality of transverse shafts provided on an active frame;

a plurality of connector links, each said connector link pivotable on one of said transverse shafts and on said seat base so as to provide swinging motion to said seat base around said transverse shafts;

a longitudinal shaft provided on a base member and pivotably supporting said active frame so as to provide a pivoting motion to said active frame around said longitudinal shaft;

an output shaft provided in said drive assembly that extends from one side of a power source; and

a transmission that converts torque from said output shaft into three movements of said seat through said seat base, in the form of a linear motion in a longitudinal direction, a pivoting motion around said transverse shafts, and a pivoting motion around said longitudinal shaft.

2. The balance practicing machine according to claim 1, said transmission comprising:

a first sub-transmission that generates a linear motion in the longitudinal direction and a pivoting motion around said transverse shafts, said first sub-transmission including a first shaft rotatably supported and connected to said output shaft through a first gear, an eccentric crank eccentrically connected on one end of

said first shaft, and an arm link having one end connected to said eccentric crank and the other end to a connector link; and

a second sub-transmission that generates a pivoting motion around said longitudinal shaft, said second sub-transmission comprising a second shaft rotatably supported and connected to said first shaft through a second gear, and an eccentric rod having one end eccentrically connected to one end of said second shaft and the other end pivotably connected to said base member.

3. The balance practicing machine according to claim 1, said plurality of connector links comprising:

a pair of connector links comprising a first connector link pivotable on a forward transverse shaft and a second connector link pivotable on a rearward transverse shaft.

4. The balance practicing machine according to claim 3, wherein said first connector link and said second connector link are provided in positions nonparallel to each other, so that swinging motion in the longitudinal direction is imparted to said seat base.

5. The balance practicing machine according to claim 3, wherein said pair of connector links, said seat base, and said base member substantially form a trapezoid.

6. The balance practicing machine according to claim 1, wherein said drive assembly is housed substantially within said seat.

7. The balance practicing machine according to claim 1, wherein said seat base moves forwardly and rearwardly in the longitudinal direction so that said seat base is intermittently parallel and nonparallel to said base member during said swinging motion of said seat base.

8. A balance practicing machine having a seat that supports an operator, said balance practicing machine comprising:

a pedestal supporting said seat on top of said pedestal; and
a drive assembly that provides a swinging motion in a first direction to said seat and a pivoting motion in a second transverse direction to said seat;
wherein said drive assembly is housed substantially within said seat.

9. The balance practicing machine according to claim 8, wherein said seat is substantially shaped like a saddle.

10. The balance practicing machine according to claim 8, said drive assembly comprising:

a pair of connector links comprising a first connector link pivotable on a forward transverse shaft and a second connector link pivotable on a rearward transverse shaft.

11. The balance practicing machine according to claim 10, wherein said first connector link and said second connector link are provided in positions nonparallel to each other, so that swinging motion in the longitudinal direction is imparted to said seat base.

12. The balance practicing machine according to claim 10, wherein said pair of connector links, a seat base, and a base member substantially form a trapezoid.

13. The balance practicing machine according to claim 12, wherein said seat base moves forwardly and rearwardly in the longitudinal direction so that said seat base is intermittently parallel and nonparallel to said base member during said swinging motion of said seat base.

14. A balance practicing machine having a seat and a drive assembly that imparts a swinging motion in a longitudinal direction to the seat, said balance practicing machine comprising:

- a seat base attached to the seat;

- a plurality of transverse shafts provided on an active frame;

- a plurality of connector links, each said connector link pivotable on one of said transverse shafts and on said seat base so as to provide swinging motion to said seat base around said transverse shafts;

- a longitudinal shaft provided on a base member and pivotably supporting said active frame so as to provide a pivoting motion to said active frame around said longitudinal shaft;

- a single power source; and

- a transmission that converts torque from said single power source into three movements of said seat through said seat base, in the form of a linear motion in a longitudinal direction, a pivoting motion around said transverse shafts, and a pivoting motion around said longitudinal shaft.

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15. The balance practicing machine according to claim 14, said single power source comprising:

an output shaft provided in said drive assembly that extends from one side of said single power source;

wherein said transmission converts torque from said output shaft into said three movements of said seat through said seat base, in the form of a linear motion in a longitudinal direction, a pivoting motion around said transverse shafts, and a pivoting motion around said longitudinal shaft.